

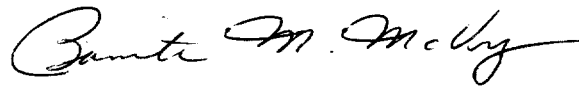
Conquest of the Stars: A Strategy Simulation

An Honors Thesis (HONRS 499)

by

Robert J. Petru

Dr. Bonita McVey
Thesis Advisor

A handwritten signature in cursive script that reads "Bonita M. McVey". The signature is written in black ink and is positioned below the printed name of the thesis advisor.

Ball State University
Muncie, Indiana

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Motivation/Purpose of Thesis

The idea behind this project has two components: to create a new type of strategy game and to simplify the record keeping involved with such a game. Many aspects of this project already exist as small parts of existing strategy games. This project combines many of those elements, such as a hexagonal movement system from games such as Military Madness (TurboGrafx-16) and Starfleet Battles (a pencil-and-paper game), varied types of combat units such as those found in WarCraft (PC), and turn-based style of play, found in Heroes of Might and Magic (PC). Similar, non-computerized games are typically long and time-consuming since a detailed game requires a great deal of record keeping.

I chose to write this game in Microsoft's Visual Basic language since it facilitates a graphical user interface very well. The language makes it easy to create the "look and feel" of an application before any of the underlying code is written.

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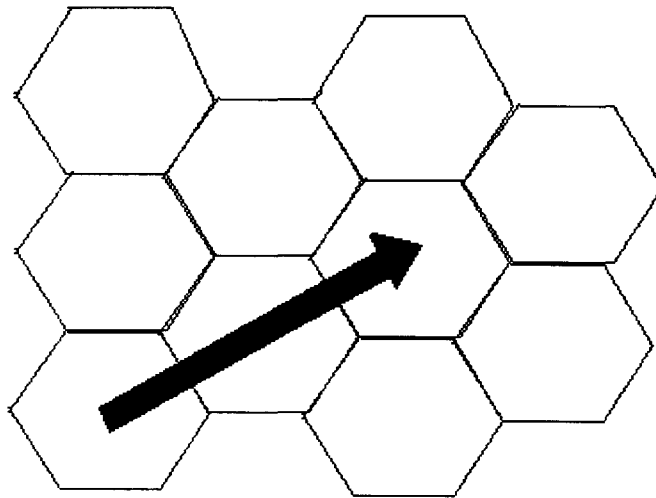
The Future of "Conquest of the Stars"

This game is still a work in progress. For a future version of the game, I would like to have a larger scale map. Players could move fleets around the map, and the battle, which currently makes up an entire game of Conquest of the Stars, would only be one step in the broader strategy. I believe this would make a longer, more involved, and more interesting experience. I would also like for players to be able to play from separate computers over a network or modem. In this way, parts of players' plans could be kept secret from each other, which would add an entirely new dimension to the game play.

Problems/Difficulties

Several of the main reasons behind this project also created obstacles to its completion. For example, a movement system based on a “grid” of hexagons rather than squares, was an important aspect of this project. This creates more maneuvering options and more varied strategy. It also made many calculations more complicated, however. The code for the Dist function shows this well. The lack of even rows and columns made figuring out distances and directions quite complex. To demonstrate, the following shows the logic that went into the code to compute the distance between two hexes:

The problem with computing distances is that a ship moving in a straight line only moves up one “row” (row meaning the number of hexes away from the bottom of the map) for every two hexes it moves horizontally. This is because the rows are “staggered” vertically, as this diagram shows:



This requires a complex set of conditions to determine the distance between two hexes:

If the hexes are an even number of columns apart:

If the number of rows separating the hexes is less than or equal to half the number of columns (Remember, the ship travels one row per two columns), then the distance is equal to the number of columns separating the two hexes.

Otherwise, the distance is equal to the number of columns between the two hexes, plus the number of rows minus half the number of columns.

(For example, if two hexes are four columns and three rows apart, then the distance is equal to four (the number of columns) plus one (three rows minus the two rows the ship already traveled while traveling four columns).)

If the hexes are an odd number of columns apart:

If the number of rows separating the hexes is less (but not equal to) half the number of columns rounded up, then the distance is equal to the number of columns separating the two hexes.

Otherwise, the distance is equal to the number of columns between the two hexes, plus the number of rows minus half the number of columns rounded down.

The Visual Basic language also created some difficulties. The language is entirely event-driven; that is, a certain action must be triggered by something the user does rather than an event within the software.

Background

It is the far-flung future. Mankind's dreams of reaching the stars have been realized. Peace and prosperity have reigned for centuries over the hundreds of worlds the human race has colonized. Known as the Alliance of Free Stars, these worlds have anything they need or want through technology or intergalactic trade.

This peace has been disturbed of late, however. Pirate raids, once an almost unheard of threat, have been increasing to the point where they are almost common. Besides the increase in attacks, an unknown leader has stepped up and moved to unite the scattered pirate groups. Known only as the Syndicate, the group has increased in strength more rapidly than anyone believed possible.

Having known no war for over four centuries, the Alliance has gathered its best leaders together. Each world is retrofitting what ships it can with any weapons at hand. The galaxy is gearing up for war...

This game is a simulation of small-scale combat between groups of ships from these two warring powers. One player takes the part of the Alliance of Free Stars, the other takes the Syndicate. By customizing a fleet of ships from each side of the conflict, a battle which will determine the course of events for the galaxy's future ensues...

Shields

Every ship has shields, which act like a “fire line” to prevent incoming weapons fire from damaging the ship. These shields are generated by powerful batteries on the ship, and the strength of the energy shield varies between ship types. Once a shield has absorbed more damage than its maximum strength rating, the shield overloads and fails. Any further weapons directed at the side of the ship where the shield fell will damage the ship itself. If the ship’s Hull bar (see the ship display screen for details) is reduced to zero, the ship is destroyed. Shields are measured in units called Blast Rating points, which are useful for comparing their relative strengths. One Blast Rating point is equal to the amount of force necessary to penetrate one centimeter of armor.

Weapons

Each ship also has an array of weapons with which to defend itself. Depending on its type, each weapon is capable of doing a set range of damage to shields (or the hull) of a ship. Each ship also has a field of fire. This is the angle (in degrees) at which the weapon can fire. For example, a weapon with a field of fire of 0 – 120 could fire at other ships that were straight ahead of it, to the right and slightly behind, or anywhere in between.

Weapon Specifications

Rapid-Fire (RF) Laser

- Strength: Very Low
- Range: Medium
- Special: The rapid-fire laser can fire twice each turn. Cooling requires one complete phase between shots.

Phaser

- Strength: Medium
- Range: High
- Special: None

Heavy Phaser

- Strength: High
- Range: Medium
- Special: None

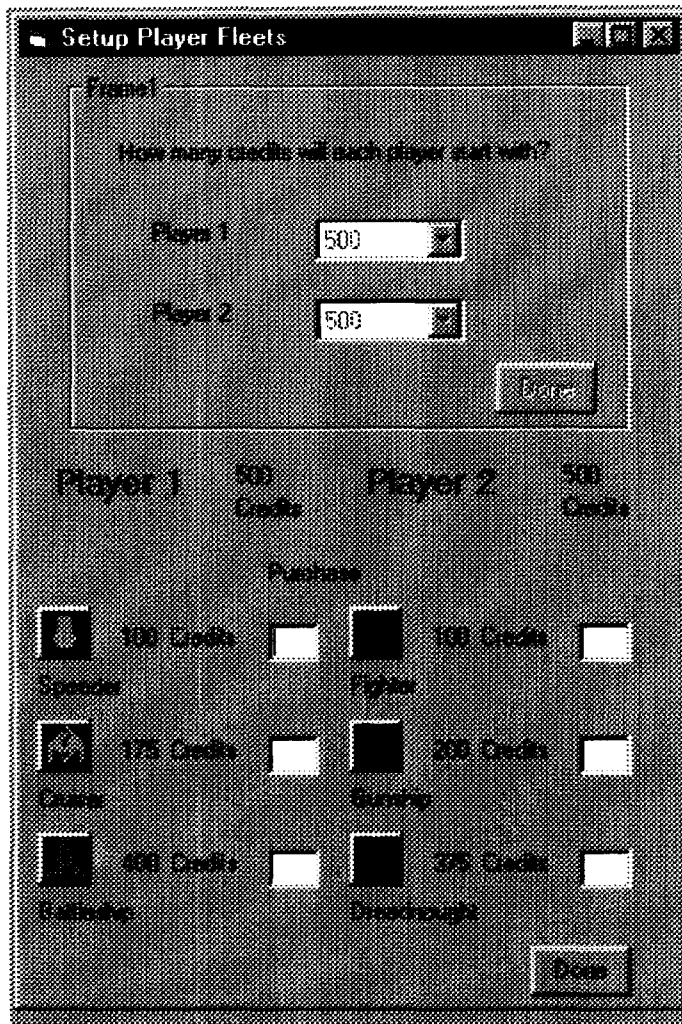
Anti-Matter Torpedo

- Strength: High
- Range: Low
- Special: None

Devastator Cannon

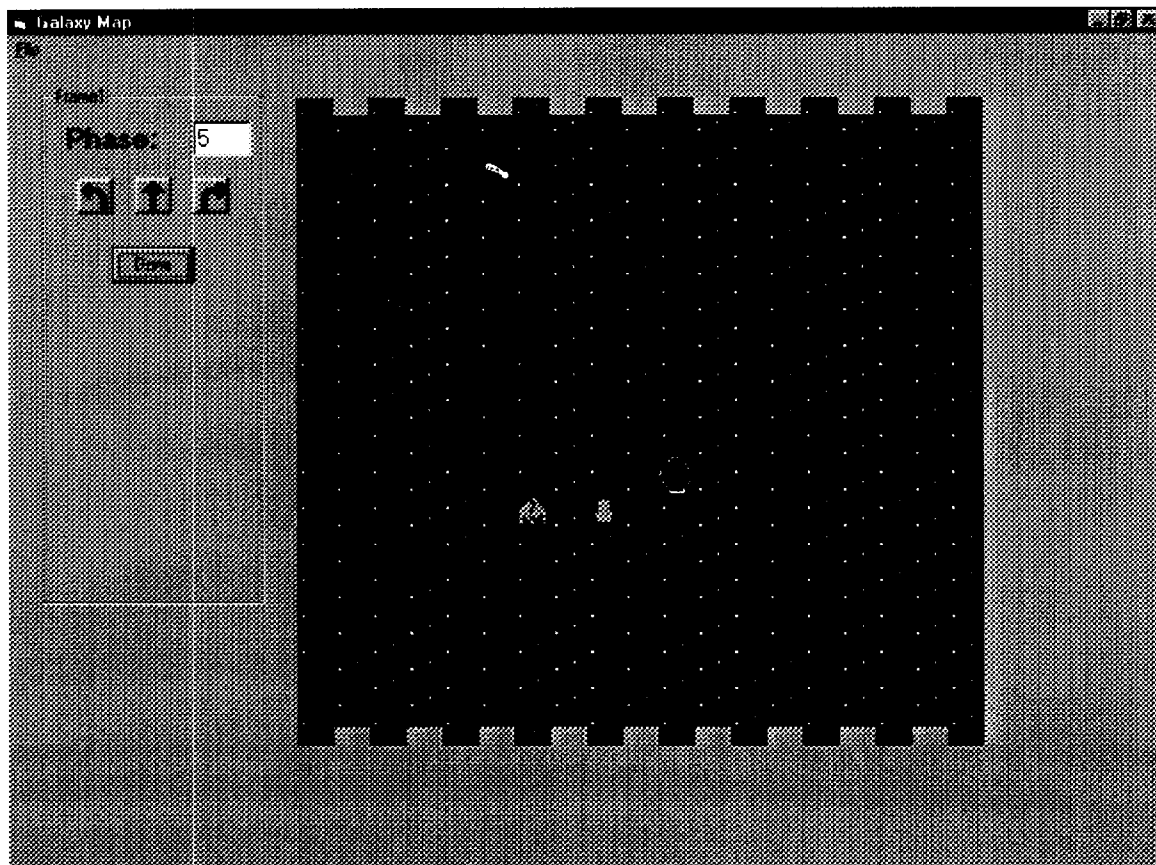
- Strength: Very High
- Range: Very Low
- Special: None

Fleet Setup Screen



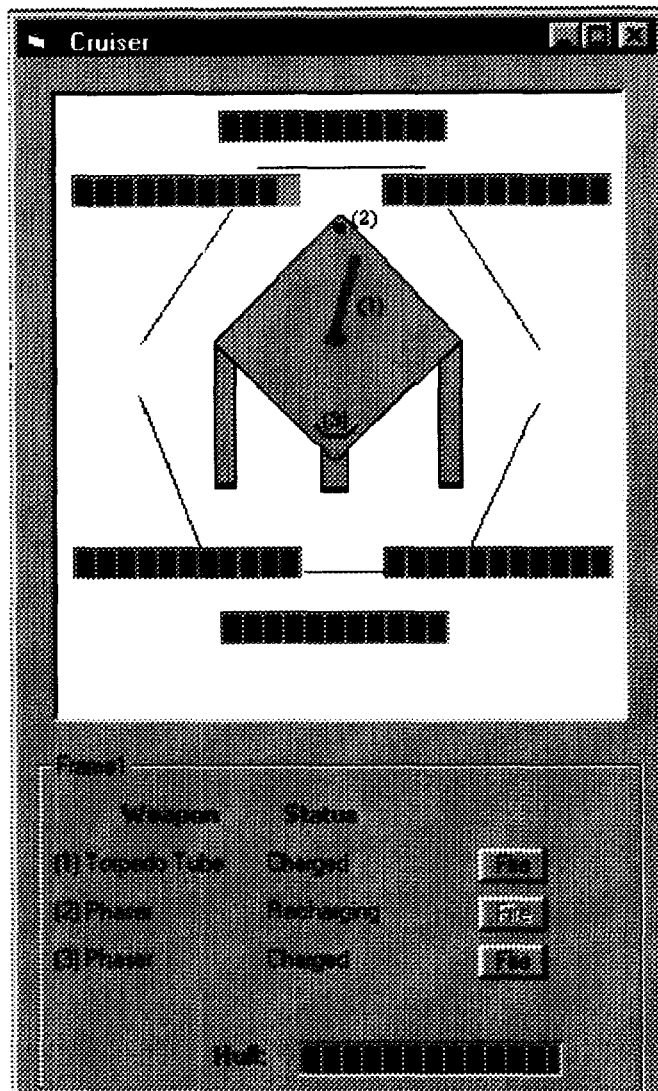
When the game starts, the Fleet Setup Screen will appear. When the Screen pops up, choose the number of credits each player will start with. The default value of 500 makes an average game. Choose more credits for a longer game, or fewer for a shorter game. Click the Done button in the top frame when this is done. Next, each player chooses which ships will make up his or her fleet from the choices that appear in the bottom half of the window. Click on the picture of a ship to purchase one of that ship. When both players have finished buying ships, click the Done button at the bottom of the screen. This will bring up the Map Screen.

The Map Screen



The Map Screen shows the locations of each ship owned by the players. The ship whose turn it is has its hex outlined in yellow (see above). Also, when weapons are fired, the ships that are currently valid targets for that weapon will appear with the yellow outline.

Ship Display Screen



The ship display screen provides an at-a-glance picture of your ship's current status. The bars next to the picture of the ship represent the strength of the ship's shields. Below picture, a box lists the ship's weapons, with the numbers that correspond to the picture. At the bottom of this box is the bar showing the strength of the ship's hull. Remember that if this bar is empty, the ship is destroyed.

Movement

Each turn is made up of ten phases. In each phase, some ships will be allowed to move one hex. Whether or not a ship can move during each phase is determined by its speed rating – the faster the ship, the more times per turn it will be allowed to move, up to a maximum of ten. Once all ships that are allowed to move have done so (or passed on their movement turn), all ships are given the chance to fire their weapons. This is because in reality, all the ships would be moving at the same time. Any ship may fire its weapons at the end of any phase, whether or not that ship was allowed to move during that phase.

Alliance Ships

Speeder Class

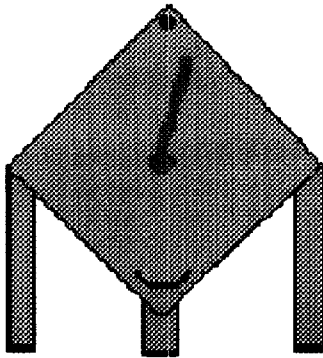


The “speeder” vessel is light, fast, and maneuverable. It is a modified scout-type ship. Despite light armor, designed to keep its mass down, the speeder has decent shielding and a pair of phasers to deter anyone who might think this little ship to be “easy pickings.”

Statistics:

- Weapons:
 - Two phasers (240 - 360) and (0 – 120)
- Shields:
 - 9 Blast Rating all sides
- Hull
 - 6 cm armor
- Speed: 10

Cruiser Class

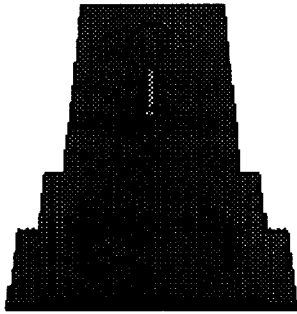


The cruiser-class vessel is easily the most balanced ship available. Its speed, shielding, armor, and armament all rank about average in comparison to the other ships. One of its most useful features is a swiveling torpedo launcher that can fire in any direction.

Statistics:

- Weapons:
 - Torpedo Tube (300 degrees)
 - Heavy phaser (300 - 60)
 - Rear-mounted phaser (60 -300)
- Shields:
 - 15 Blast Rating shields front
 - 12 Blast Rating all other sides
- Hull
 - 12 cm armor
- Speed: 6

Battleship Class



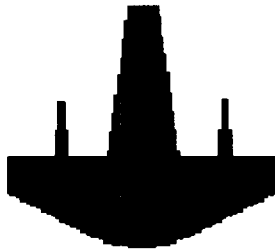
The battleship is the largest, toughest ship in the known galaxy. It is actually a type of cruise ship, fitted with the military resources of a small moon. It has more weapons, armor and shields than any other ship involved in the war. All this power does come at a price, however: it is also the slowest ship. The battleship can take a beating and keep on going, and it has versatile weapons that allow all sides of the ship to be covered by at least one weapon.

Statistics:

- Weapons:
 - Torpedo Tube (300 – 60)
 - Heavy phaser (240 – 120)
 - Two rear-mounted phasers (60 – 180) and (180 – 300)
- Shields:
 - 20 Blast Rating shields front
 - 18 Blast Rating all other sides
- Hull
 - 18 cm armor
- Speed: 2

Syndicate Ships

Fighter Class



This ship is built for two things: speed and firepower. Shields and armor are fairly light, so be sure to keep out of enemy ships' way, but the fighter's speed allows it to fly circles around the larger, slower ships. This is the fastest ship available to the Syndicate, with twin rapid-fire lasers and a nose-mounted heavy laser for extra punch.

Statistics:

- Weapons:
 - Two rapid fire laser cannons, capable of firing twice per turn (240 – 360) and (0 – 120)
 - One heavy laser cannon (300 – 60)
- Shields:
 - 8 Blast Rating shields on all sides
- Hull
 - 7 cm armor
- Speed: 8

Gunship Class

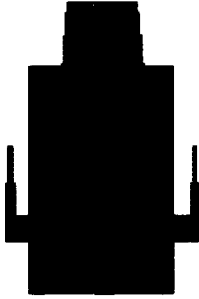


The Gunship has been a mainstay of pirate attacks since long before the war started. It has a good balance of speed, defense, and firepower. Its bat-like shape has also been said to have a psychological effect on the pirates' potential victims before the battle even starts.

Statistics:

- Weapons:
 - Two heavy phasers (240 – 360) and (0 – 120)
 - Two rear-mounted phasers (120 – 180) and (180 – 240)
- Shields:
 - 14 Blast Rating front shield
 - 12 Blast Rating shields on all other sides
- Hull
 - 11 cm armor
- Speed: 6

Dreadnought Class



This is the ship that has struck fear in the hearts of all Alliance worlds. Besides defensive capabilities rivaling the Alliance Battleship, this ship carries the terrifying Devastator cannon, the most destructive weapon ever to be carried aboard a starship. Make sure to stay out of this weapon's line of fire!

Statistics:

- **Weapons:**
 - Devastator Cannon (300 – 60)
 - Two phasers (240 – 360) and (0 –120)
 - Rear-mounted phaser (120 – 240)
- **Shields:**
 - 16 Blast Rating front shield
 - 14 Blast Rating shields on all other sides
- **Hull**
 - 15 cm armor
- **Speed:** 3

FleetSetup - 1

```
Private Sub Buy_Button_Click(Index As Integer)
    Dim dummy As Integer 'Variable for the global function to return
    Dim response
    If Index < 4 Then 'Player 1 is choosing a ship
        If Val(Money_Left_Label(1).Caption) < Val(Price_Label(Index).Caption) Then
            response = MsgBox("Not enough credits left!", vbOKOnly, "Ship Purchase")
            Exit Sub
        ElseIf Players(1).Num_Ships = 10 Then
            response = MsgBox("You have as many ships as you can", vbOKOnly, "Ship Purchase")
            Exit Sub
        Else
            Money_Left_Label(1).Caption = Str(Val(Money_Left_Label(1).Caption) - Val(Price_Label
(Index).Caption))
            Num_Ships(Index).Text = Str(Val(Num_Ships(Index).Text) + 1)
        End If
    Else 'Player 2 is choosing
        If Val(Money_Left_Label(2).Caption) < Val(Price_Label(Index).Caption) Then
            response = MsgBox("Not enough credits left!", vbOKOnly, "Ship Purchase")
            Exit Sub
        ElseIf Players(2).Num_Ships = 10 Then
            response = MsgBox("You have as many ships as you can", vbOKOnly, "Ship Purchase")
            Exit Sub
        Else
            Money_Left_Label(2).Caption = Str(Val(Money_Left_Label(2).Caption) - Val(Price_Label
(Index).Caption))
            Num_Ships(Index).Text = Str(Val(Num_Ships(Index).Text) + 1)
        End If
    End If
    Select Case Index
        Case 1:
            dummy = Create_Ship("speeder", 1)
        Case 2:
            dummy = Create_Ship("cruiser", 1)
        Case 3:
            dummy = Create_Ship("battleship", 1)
        Case 4:
            dummy = Create_Ship("fighter", 2)
    End Select
End Sub

Private Sub Done_Button_Click()
    Pl1_Money_Combo.Enabled = False
    Pl2_Money_Combo.Enabled = False
    Done_Button.Enabled = False
    Money_Left_Label(1).Caption = Pl1_Money_Combo.Text
    Money_Left_Label(2).Caption = Pl2_Money_Combo.Text
    Buy_Button(1).Picture = LoadPicture(App.Path & "\speeder_icon1.bmp")
    Buy_Button(1).Enabled = True
    Buy_Button(2).Picture = LoadPicture(App.Path & "\cruiser_icon1.bmp")
    Buy_Button(2).Enabled = True
    Buy_Button(3).Picture = LoadPicture(App.Path & "\battleship_icon1.bmp")
    Buy_Button(3).Enabled = True
    Buy_Button(4).Picture = LoadPicture(App.Path & "\fighter_icon1.bmp")
    Buy_Button(4).Enabled = True
    Buy_Button(5).Picture = LoadPicture(App.Path & "\gunship_icon1.bmp")
    Buy_Button(5).Enabled = True
    Buy_Button(6).Picture = LoadPicture(App.Path & "\dreadnought_icon1.bmp")
    Buy_Button(6).Enabled = True
End Sub

Private Sub Done_Button2_Click()
    Dim response
    If Players(1).Num_Ships = 0 Or Players(2).Num_Ships = 0 Then
        response = MsgBox("Each player must have at least one ship to play.", vbOKOnly, "Setup F
leets")
    Else
        'Set up the map
    End If
End Sub
```

FleetSetup - 2

```
    With Players(1)
        For i = 1 To CInt(UBound(.Ships))
            If .Ships(i).Ship_Position > 0 Then
                Set MapScreen.ShipSquare(i).Picture = .Ships(i).Ship_Icon
                MapScreen.ShipSquare(i).Left = MapScreen.MapSquare(.Ships(i).Ship_Position).
Left
                MapScreen.ShipSquare(i).Top = MapScreen.MapSquare(.Ships(i).Ship_Position).T
op
                MapScreen.ShipSquare(i).Visible = True
            End If
        Next i
    End With
    With Players(2)
        For i = 1 To CInt(UBound(.Ships))
            If .Ships(i).Ship_Position > 0 Then
                Set MapScreen.ShipSquare(10 + i).Picture = .Ships(i).Ship_Icon
                MapScreen.ShipSquare(10 + i).Left = MapScreen.MapSquare(.Ships(i).Ship_Positi
ion).Left
                MapScreen.ShipSquare(10 + i).Top = MapScreen.MapSquare(.Ships(i).Ship_Positi
on).Top
                MapScreen.ShipSquare(10 + i).Visible = True
            End If
        Next i
    End With

    round_no = 1
    MapScreen.Phase_No.Text = round_no
    Active_Player_No = 1
    Active_Ship_No = 1
    MapScreen.HighlightSquare(1).Left = MapScreen.MapSquare(Players(Active_Player_No).Ships(
Active_Ship_No).Ship_Position).Left
    MapScreen.HighlightSquare(1).Top = MapScreen.MapSquare(Players(Active_Player_No).Ships(A
ctive_Ship_No).Ship_Position).Top
    MapScreen.HighlightSquare(1).Visible = True
    Me.Hide
End If
End Sub

Private Sub Form_Load()
    For i = 1 To 6
        Buy_Button(i).Enabled = False
    Next i
    Pl1_Money_Combo.Text = "500"
    Pl2_Money_Combo.Text = "500"
End Sub
```

ShipDisplay - 1

```

Private Sub Fire_Button_Click(Index As Integer)
    Dim highlight_counter As Integer 'Index for the current highlight to place over a square
    Dim i As Integer 'For loop indexing
    Dim target_player_no As Integer 'This is the player being fired UPON
    Dim wpn_range 'Distance between attacker and each enemy ship
    Dim wpn_max_range 'Farthest the current weapon can fire

    highlight_counter = 2 'The first highlight square is used for the window ship
    target_player_no = 3 - Window_Player_No 'opposite player from the one firing
    Window_Wpn_No = Index

    'Determine the maximum range of the weapon being fired
    Select Case Players(Window_Player_No).Ships(Window_Ship_No).Weapons(Index).Wpn_Type
        Case 1:
            wpn_max_range = 5
        Case 2:
            wpn_max_range = 7
        Case 3:
            wpn_max_range = 5
        Case 4:
            wpn_max_range = 4
        Case 5:
            wpn_max_range = 3
    End Select

    For i = 1 To 10 'Loop through each of opponent's ships
        wpn_range = Dist(Players(Window_Player_No).Ships(Window_Ship_No).Ship_Position, _
            Players(target_player_no).Ships(i).Ship_Position)
        For j = 1 To Len(Players(Window_Player_No).Ships(Window_Ship_No).Weapons(Index).Wpn_Dir)
            Dim temp As String
            Dim temp2 As String
            temp = Mid(Players(Window_Player_No).Ships(Window_Ship_No).Weapons(Index).Wpn_Dir, j
, j)
            temp2 = Arc_No(Players(Window_Player_No).Ships(Window_Ship_No), Players(target_playe
r_no).Ships(i).Ship_Position)
            'If this ship exists...
            If Players(target_player_no).Ships(i).Type <> "" Then
                'And if it is within range
                If Dist(Players(Window_Player_No).Ships(Window_Ship_No).Ship_Position, _
                    Players(target_player_no).Ships(i).Ship_Position) <= wpn_max_range Then
                    'Aaaand if it is within the current weapon's arc of firing
                    If InStr(Arc_No(Players(Window_Player_No).Ships(Window_Ship_No), _
                        Players(target_player_no).Ships(i).Ship_Position),
                            Mid(Players(Window_Player_No).Ships(Window_Ship_No).Weapons(Index).Wpn_D
ir, j, 1)) <> 0 Then
                        'Put a highlight hex there to mark as a valid target
                        MapScreen.HighlightSquare(highlight_counter).Left = _
                            MapScreen.MapSquare(Players(target_player_no).Ships(i).Ship_Position
).Left
                        MapScreen.HighlightSquare(highlight_counter).Top = _
                            MapScreen.MapSquare(Players(target_player_no).Ships(i).Ship_Position
).Top
                        MapScreen.HighlightSquare(highlight_counter).Visible = True
                        MapScreen.HighlightSquare(highlight_counter).ZOrder
                        highlight_counter = highlight_counter + 1
                    End If
                End If
            End If
        Next j
    Next i
End Sub

Private Sub Form_Load()
    For i = 1 To 4
        Wpn_Name(i).Caption = "(" & i & ")"
        Select Case Players(Window_Player_No).Ships(Window_Ship_No).Weapons(i).Wpn_Type
            Case 1:
                Wpn_Name(i).Caption = Wpn_Name(i).Caption & "RF Laser"
        End Select
    Next i
End Sub

```

ShipDisplay - 2

```
Case 2:
    Wpn_Name(i).Caption = Wpn_Name(i).Caption & "Phaser"
Case 3:
    Wpn_Name(i).Caption = Wpn_Name(i).Caption & "Heavy Phaser"
Case 4:
    Wpn_Name(i).Caption = Wpn_Name(i).Caption & "Torpedo Tube"
Case 5:
    Wpn_Name(i).Caption = Wpn_Name(i).Caption & "Devastator Cannon"
End Select
Wpn_Status_Label(i).Caption = Players(Window_Player_No).Ships(Window_Ship_No).Weapons(i)
.Status
If Players(Window_Player_No).Ships(Window_Ship_No).Weapons(i).Wpn_Type > 0 Then
    Wpn_Name(i).Visible = True
    Wpn_Status_Label(i).Visible = True
    Fire_Button(i).Visible = True
End If
If MapScreen.Phase No.Text = "Fire!" And
    (Players(Window_Player_No).Ships(Window_Ship_No).Weapons(i).Status = "Charged" Or
    Players(Window_Player_No).Ships(Window_Ship_No).Weapons(i).Status = "Charged x2" Or
    Players(Window_Player_No).Ships(Window_Ship_No).Weapons(i).Status = "Charged x1") Then
    Fire_Button(i).Enabled = True
Else
    Fire_Button(i).Enabled = False
End If
Next i
With Players(Window_Player_No).Ships(Window_Ship_No)
    Shield1_Bar.Value = (.Shields(1).Current / .Shields(1).Max) * 100
    Shield2_Bar.Value = (.Shields(2).Current / .Shields(2).Max) * 100
    Shield3_Bar.Value = (.Shields(3).Current / .Shields(3).Max) * 100
    Shield4_Bar.Value = (.Shields(4).Current / .Shields(4).Max) * 100
    Shield5_Bar.Value = (.Shields(5).Current / .Shields(5).Max) * 100
    Shield6_Bar.Value = (.Shields(6).Current / .Shields(6).Max) * 100
    Hull_Bar.Value = (.Hull / .Hull_Max) * 100
End With
Set Ship_Pic.Picture = LoadPicture(App.Path & "\" & Players(Window_Player_No).Ships(Window_Ship_No).Type & ".bmp")
End Sub
```


VERSION 5.00

Object = "{6B7E6392-850A-101B-AFC0-4210102A8DA7}#1.1#0"; "COMCTL32.OCX"

Begin VB.Form MapScreen

Caption = "Galaxy Map"
ClientHeight = 7695
ClientLeft = 60
ClientTop = 630
ClientWidth = 9930
LinkTopic = "Form1"
ScaleHeight = 513
ScaleMode = 3 'Pixel
ScaleWidth = 662
WindowState = 2 'Maximized

Begin VB.PictureBox Picture1

Height = 495
Index = 100
Left = 1800
ScaleHeight = 435
ScaleWidth = 435
TabIndex = 5
Top = 5880
Width = 495

End

Begin VB.PictureBox Picture1

Height = 495
Index = 0
Left = 1920
ScaleHeight = 435
ScaleWidth = 435
TabIndex = 4
Top = 6960
Width = 495

End

Begin VB.Frame Frame1

Caption = "Frame1"
Height = 5415
Left = 360
TabIndex = 0
Top = 240
Width = 2295

Begin VB.CommandButton Command3

Height = 375
Left = 1560
MaskColor = &H80000005&
Picture = "MapScreen.frx":0000
Style = 1 'Graphical
TabIndex = 3
Top = 480
UseMaskColor = -1 'True
Width = 375

End

Begin VB.CommandButton Command2

Height = 375
Left = 960
MaskColor = &H00FFFFFF&
Picture = "MapScreen.frx":10C0
Style = 1 'Graphical

```

        TabIndex      = 2
        Top           = 480
        UseMaskColor  = -1 'True
        Width         = 375
    End
    Begin VB.CommandButton Command1
        Height         = 375
        Left           = 360
        Picture         = "MapScreen.frx":186E
        Style           = 1 'Graphical
        TabIndex       = 1
        Top            = 480
        Width          = 375
    End
End
Begin VB.Image MapSquare
    Height           = 375
    Index            = 37
    Left             = 3750
    Picture          = "MapScreen.frx":1B78
    Top              = 6750
    Width            = 375
End
Begin VB.Image MapSquare
    Height           = 375
    Index            = 19
    Left             = 3375
    Picture          = "MapScreen.frx":2326
    Top              = 6555
    Width            = 375
End
Begin VB.Image MapSquare
    Height           = 375
    Index            = 18
    Left             = 3000
    Picture          = "MapScreen.frx":2AD4
    Top              = 375
    Width            = 375
End
Begin VB.Image MapSquare
    Height           = 375
    Index            = 17
    Left             = 3000
    Picture          = "MapScreen.frx":3282
    Top              = 750
    Width            = 375
End
Begin VB.Image MapSquare
    Height           = 375
    Index            = 16
    Left             = 3000
    Picture          = "MapScreen.frx":3A30
    Top              = 1125
    Width            = 375
End
Begin VB.Image MapSquare
    Height           = 375

```

```

        Index          = 15
        Left           = 3000
        Picture        = "MapScreen.frx":41DE
        Top            = 1500
        Width          = 375
    End
    Begin VB.Image MapSquare
        Height          = 375
        Index           = 14
        Left            = 3000
        Picture         = "MapScreen.frx":498C
        Top             = 1875
        Width           = 375
    End
    Begin VB.Image MapSquare
        Height          = 375
        Index           = 13
        Left            = 0
        Picture         = "MapScreen.frx":513A
        Top             = 2760
        Width           = 375
    End
    Begin VB.Image MapSquare
        Height          = 375
        Index           = 0
        Left            = 3000
        Picture         = "MapScreen.frx":58E8
        Top             = 2250
        Width           = 375
    End
    Begin VB.Image MapSquare
        Height          = 375
        Index           = 12
        Left            = 3000
        Picture         = "MapScreen.frx":6096
        Top             = 2625
        Width           = 375
    End
    Begin VB.Image MapSquare
        Height          = 375
        Index           = 10
        Left            = 3000
        Picture         = "MapScreen.frx":6844
        Top             = 3375
        Width           = 375
    End
    Begin VB.Image MapSquare
        Height          = 375
        Index           = 9
        Left            = 3000
        Picture         = "MapScreen.frx":6FF2
        Top             = 3750
        Width           = 375
    End
    Begin VB.Image MapSquare
        Height          = 375
        Index           = 11

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        Left           = 3000
        Picture        = "MapScreen.frx":77A0
        Top            = 3000
        Width          = 375
    End
    Begin VB.Image MapSquare
        Height          = 375
        Index           = 8
        Left            = 3000
        Picture          = "MapScreen.frx":7F4E
        Top             = 4125
        Width           = 375
    End
    Begin VB.Image MapSquare
        Height          = 375
        Index           = 7
        Left            = 3000
        Picture          = "MapScreen.frx":86FC
        Top             = 4500
        Width           = 375
    End
    Begin VB.Image MapSquare
        Height          = 375
        Index           = 6
        Left            = 3000
        Picture          = "MapScreen.frx":8EAA
        Top             = 4875
        Width           = 375
    End
    Begin ComctlLib.ImageList ImageList1
        Left            = 1200
        Top             = 6360
        _ExtentX        = 1005
        _ExtentY        = 1005
        _BackColor       = -2147483643
        MaskColor        = 16777215
        _Version         = 327680
    End
    Begin VB.Image MapSquare
        Height          = 375
        Index           = 5
        Left            = 3000
        Picture          = "MapScreen.frx":9658
        Top             = 5250
        Width           = 375
    End
    Begin VB.Image MapSquare
        Height          = 375
        Index           = 30
        Left            = 9000
        Picture          = "MapScreen.frx":9E06
        Top             = 1560
        Width           = 375
    End
    Begin VB.Image MapSquare
        Height          = 375
        Index           = 29

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        Left            = 8640
        Picture         = "MapScreen.frx":A5B4
        Top             = 1440
        Width           = 375
    End
    Begin VB.Image MapSquare
        Height           = 375
        Index            = 97
        Left             = 9360
        Picture          = "MapScreen.frx":AD62
        Top              = 1440
        Width            = 375
    End
    Begin VB.Image MapSquare
        Height           = 375
        Index            = 27
        Left             = 8640
        Picture          = "MapScreen.frx":B510
        Top              = 1080
        Width            = 375
    End
    Begin VB.Image MapSquare
        Height           = 375
        Index            = 26
        Left             = 8640
        Picture          = "MapScreen.frx":BCBE
        Top              = 720
        Width            = 375
    End
    Begin VB.Image MapSquare
        Height           = 375
        Index            = 25
        Left             = 8640
        Picture          = "MapScreen.frx":C46C
        Top              = 360
        Width            = 375
    End
    Begin VB.Image MapSquare
        Height           = 375
        Index            = 24
        Left             = 9000
        Picture          = "MapScreen.frx":CC1A
        Top              = 1200
        Width            = 375
    End
    Begin VB.Image MapSquare
        Height           = 375
        Index            = 98
        Left             = 9360
        Picture          = "MapScreen.frx":D3C8
        Top              = 1080
        Width            = 375
    End
    Begin VB.Image MapSquare
        Height           = 375
        Index            = 22
        Left             = 9000

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    Picture      = "MapScreen.frx":DB76
    Top          = 840
    Width        = 375
End
Begin VB.Image MapSquare
    Height       = 375
    Index        = 21
    Left         = 9000
    Picture      = "MapScreen.frx":E324
    Top          = 480
    Width        = 375
End
Begin VB.Image MapSquare
    Height       = 375
    Index        = 99
    Left         = 9360
    Picture      = "MapScreen.frx":EAD2
    Top          = 720
    Width        = 375
End
Begin VB.Image MapSquare
    Height       = 375
    Index        = 100
    Left         = 9360
    Picture      = "MapScreen.frx":F280
    Top          = 360
    Width        = 375
End
Begin VB.Image MapSquare
    Height       = 375
    Index        = 4
    Left         = 3000
    Picture      = "MapScreen.frx":FA2E
    Top          = 5625
    Width        = 375
End
Begin VB.Image MapSquare
    Height       = 375
    Index        = 3
    Left         = 3000
    Picture      = "MapScreen.frx":101DC
    Top          = 6000
    Width        = 375
End
Begin VB.Image MapSquare
    Height       = 375
    Index        = 2
    Left         = 3000
    Picture      = "MapScreen.frx":1098A
    Top          = 6375
    Width        = 375
End
Begin VB.Image MapSquare
    Height       = 375
    Index        = 1
    Left         = 3000
    Picture      = "MapScreen.frx":11138

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        Top           = 6750
        Width         = 375
    End
    Begin VB.Menu FileMenu
        Caption        = "&File"
    End
End
Attribute VB_Name = "MapScreen"
Attribute VB_GlobalNameSpace = False
Attribute VB_Creatable = False
Attribute VB_PredeclaredId = True
Attribute VB_Exposed = False
Private Sub Form_Load()
    'Image1(0).Picture = "C:\windows\desktop\space.bmp"
    Dim Player1 As Fleet
    Dim Player2 As Fleet
    'Test scenario - set up some ships
    With Player1
        .Ships(1).Hull = 10
        .Ships(1).Shield1 = 15
        .Ships(1).Shield2 = 12
        .Ships(1).Shield3 = 12
        .Ships(1).Shield4 = 12
        .Ships(1).Shield5 = 12
        .Ships(1).Shield6 = 12
        .Ships(1).Wpn1Str = 3
        .Ships(1).Wpn1Dir = "123456"
        .Ships(1).Wpn2Str = 2
        .Ships(1).Wpn2Dir = "126"
        .Ships(1).Wpn3Str = 2
        .Ships(1).Wpn3Dir = "345"
    End With
    With Player2
        .Ships(1).Hull = 7
        .Ships(1).Shield1 = 9
        .Ships(1).Shield2 = 9
        .Ships(1).Shield3 = 9
        .Ships(1).Shield4 = 9
        .Ships(1).Shield5 = 9
        .Ships(1).Shield6 = 9
        .Ships(1).Wpn1Str = 3
        .Ships(1).Wpn1Dir = "1"
        .Ships(1).Wpn2Str = 1
        .Ships(1).Wpn2Dir = "12"
        .Ships(1).Wpn3Str = 1
        .Ships(1).Wpn3Dir = "16"
        .Ships(2).Hull = 7
        .Ships(2).Shield1 = 9
        .Ships(2).Shield2 = 9
        .Ships(2).Shield3 = 9
        .Ships(2).Shield4 = 9
        .Ships(2).Shield5 = 9
        .Ships(2).Shield6 = 9
        .Ships(2).Wpn1Str = 3
        .Ships(2).Wpn1Dir = "1"
        .Ships(2).Wpn2Str = 1
        .Ships(2).Wpn2Dir = "12"
    End With

```

```

        .Ships(2).Wpn3Str = 1
        .Ships(2).Wpn3Dir = "16"
    End With
End Sub

Private Sub Image1_Click(Index As Integer)

End Sub

Public Function CreateShip(ship_type As Integer)
    Select Case ship_type
    Case 1

End Function

Private Sub MapSquare_DblClick(Index As Integer)
    Dim X As ListImage
    Set X = ImageList1.ListImages. _
        Add(, , LoadPicture("c:\windows\desktop\highlight.bmp"))
    Set X = ImageList1.ListImages. _
        Add(, , LoadPicture("c:\windows\desktop\planet1.bmp"))
    ShipDisplay.Show
    'Set MapSquare(Index).Picture = ImageList1.Overlay(2, 1)
    'Set MapSquare(Index).Picture = ImageList1.Overlay(1, 2)
    Set MapSquare(Index).Picture = LoadPicture("C:\windows\desktop\overlay.bmp")

End Sub

```